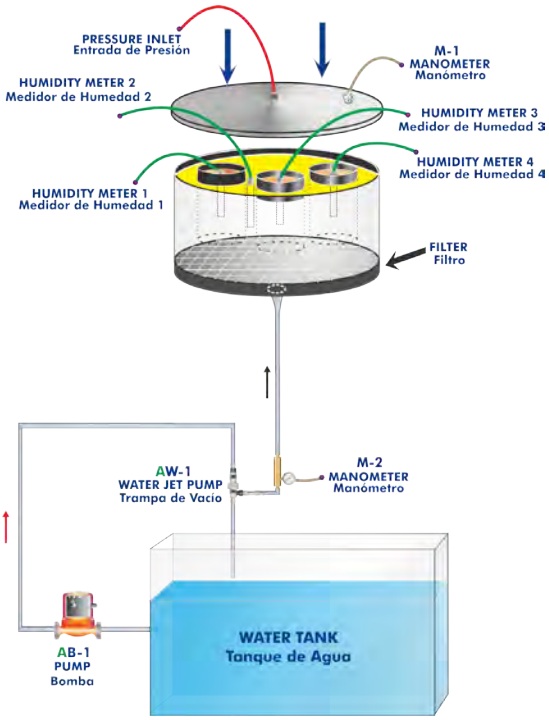
Soil Moisture Suction Sand Unit

PAHS

Engineering and Technical Teaching Equipment

www.edibon.com
PRODUCTS
13.-ENVIRONMENT

PROCESS DIAGRAM AND UNIT ELEMENTS ALLOCATION



ISO 9001: Quality Management (for Design, Manufacturing, Commercialization and After-sales service)

European Union Certificate (total safety)

Certificates ISO 14001 and ECO-Management and Audit Scheme (environmental management)

"Worlddidac Quality Charter" and Platinum Member of Worlddidac

INTRODUCTION

The soil water content measures the quantity of water in a soil but, alone gives no indication of its availability. For example, the extraction of water from a sandy soil is easier than from a clay soil at the same soil water content.

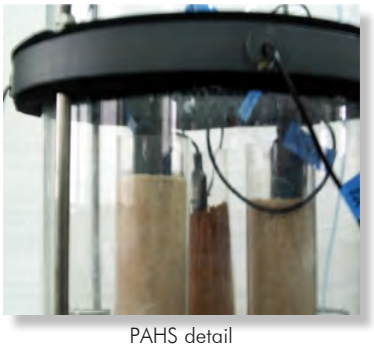
The Soil Moisture Suction Sand Unit, "PAHS", allows to measure the soil water characteristics of different soils.

GENERAL DESCRIPTION

The Soil Moisture Suction Sand Unit, "PAHS", has been designed to study and understand the water retentivity principles in terms of soil suction, the relationship between water retentivity and soil and the derivation of soil moisture characteristic curves.

The unit is large enough to permit the simultaneous evaluation of several samples and consists of a suction system and a soils container:

- Suction system: It consists of a water circuit that includes a water tank, a pump, a water jet pump and a pressure gauge (vacuometer). The pump propels water from the water tank and circulates through the water jet pump, which sucks the water of the soils container.
- Soils container: It consists of a cylindrical tank filled with saturated sand (not supplied) that contains three soil sample retaining rings. Inside of the sand the soil samples are placed as well as the humidity meters. A cover is provided to prevent evaporative water loss during the practical exercises and several filters avoid sand transport to the water tank. The soils container includes a pressure gauge (manometer) and an air inlet (pressure inlet) to study of the effect of the atmospheric pressure.



PAHS detail

Soil samples placed on the sand are subjected to suction. This suction is applied by means of the water jet pump and the water pump. In order to maintain the suction, a volume water supply is required.

SPECIFICATIONS

Bench-top unit.

Anodized aluminum frame and panels made of painted steel.

Main metallic elements made of stainless steel.

Diagram in the front panel with distribution of the elements similar to the real one.

Suction system, including:

Water tank with drain valve, capacity: 6 l, approx.

Water pump, max. flow: 3 l/min.

Water jet pump, flow: 5 l/min, suction flow: 0.5 l/min.

It includes a quick action connection to fit the tubing that is connected to a pressure gauge (vacuometer).

Soils container, including:

Transparent cylindrical tank for filling with sand. It includes two drain valves and a metallic filter to avoid sand transport to the water tank. Tank diameter: 200 mm, capacity: 10 l.

Transparent cover to prevent evaporative water loss during the practical exercises. It includes two quick action connections to fit the tubings that are connected to a pressure gauge (manometer) and an air inlet (pressure inlet).

Three soil sample retaining rings. They include a metallic filter to avoid sand transport to the water tank. Diameter of each one: 60 mm, capacity of each one: 0.6 l.

Meters:

Pressure gauge (vacuometer), situated in the suction system, range: -1 – 0 bar.

Pressure gauge (manometer), situated in the cylindrical tank, range: 0 – 2.5 bar.

Four humidity meters situated in the soil sample retaining rings and in the soils container.

Cables and Accessories, for normal operation.

Manuals: This unit is supplied with the following manuals: Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices Manuals.

EXERCISES AND PRACTICAL POSSIBILITIES

1.- Understanding of the relationship between water retentivity and soil.
2.- Understanding of the basic principles of water retentivity in terms of soil suction.
3.- Study of the effect of the atmospheric pressure.
4.- Determination of the retentivity of different soil samples.

Additional practical possibilities:

5.- Derivation of the soil moisture characteristic curves for several soils.

REQUIRED SERVICES

- Electrical supply: single-phase 200 VAC – 240 VAC/50 Hz or 110 VAC – 127 VAC/60 Hz.
- Water supply and drain.

DIMENSIONS AND WEIGHTS

PAHS:

- Dimensions: 400 x 500 x 1200 mm approx.
  (15.74 x 19.68 x 47.24 inches approx.).
- Weight: 90 Kg approx.
  (198.41 pounds approx.).

REQUIRED CONSUMABLES (Not included)

- Sand.

SIMILAR UNITS AVAILABLE

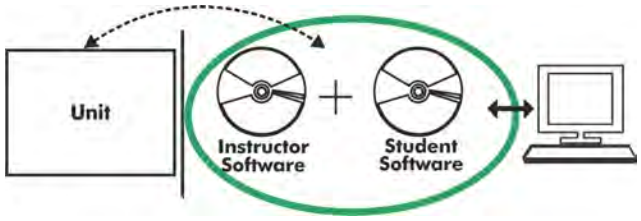
Offered in this catalogue:

- PAHS. Soil Moisture Suction Sand Unit.

Offered in other catalogue:

- PAHSC. Computer Controlled Soil Moisture Suction Sand Unit.

PAHS/ICAI. Interactive Computer Aided Instruction Software:



With no physical connection between unit and computer, **this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF)**. Both are interconnected so that the teacher knows at any moment what is the theoretical and practical knowledge of the students.

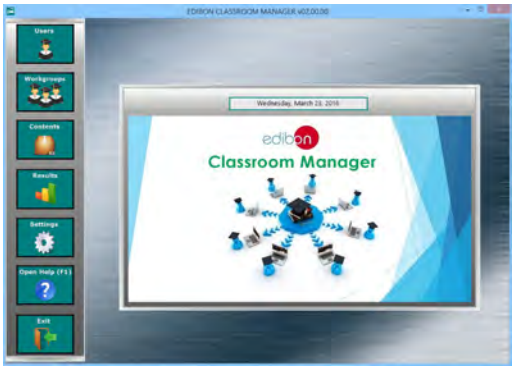
Instructor Software

- ECM-SOF. EDIBON Classroom Manager (Instructor Software).

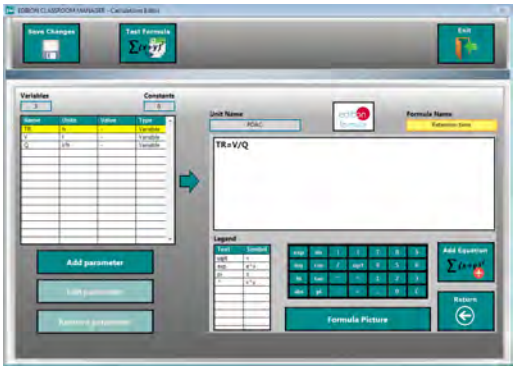
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual students, workgroups, units, etc... so the teacher can know in real time the level of understanding of any student in the classroom.

Innovative features:

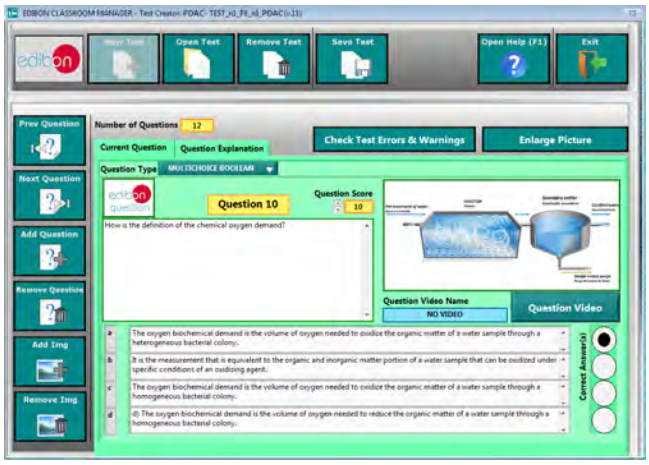
- **User Data Base Management.**
- **Administration and assignment of Workgroup, Task and Training sessions.**
- **Creation and Integration of Practical Exercises and Multimedia Resources.**
- **Custom Design of Evaluation Methods.**
- **Creation and assignment of Formulas & Equations.**
- **Equation System Solver Engine.**
- **Updatable Contents.**
- **Report generation, User Progression Monitoring and Statistics.**



ECM-SOF. EDIBON Classroom Manager (Instructor Software) Application Main Screen



ECAL. EDIBON Calculations Program Package - Formula Editor Screen



ETTE. EDIBON Training Test & Exam Program Package - Main Screen with Numeric Result Question

ERS. EDIBON Results & Statistics Program Package - Student Scores Histogram

Optional

Student Software

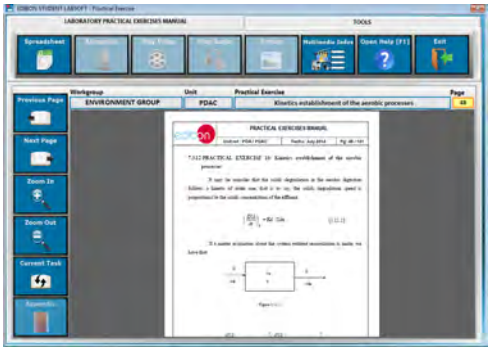
- ESL-SOF. EDIBON Student Labsoft (Student Software).

ESL-SOF is the application addressed to the Students that helps them to understand theoretical concepts by means of practical exercises and to prove their knowledge and progression by performing tests and calculations in addition to Multimedia Resources. Default planned tasks and an Open workgroup are provided by EDIBON to allow the students start working from the first session. Reports and statistics are available to know their progression at any time, as well as explanations for every exercise to reinforce the theoretically acquired technical knowledge.

ESL-SOF. EDIBON Student LabSoft (Student Software) Application Main Screen

Innovative features:

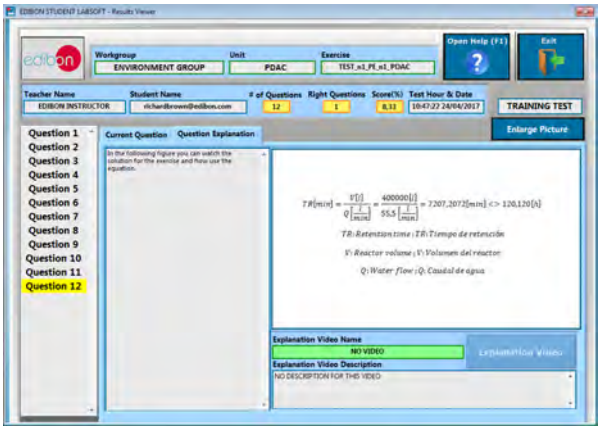
- **Student Log-In & Self-Registration.**
- **Existing Tasks checking & Monitoring.**
- **Default contents & scheduled tasks available to be used from the first session.**
- **Practical Exercises accomplishment by following the Manual provided by EDIBON.**
- **Evaluation Methods to prove your knowledge and progression.**
- **Test self-correction.**
- **Calculations computing and plotting.**
- **Equation System Solver Engine.**
- **User Monitoring Learning & Printable Reports.**
- **Multimedia-Supported auxiliary resources.**



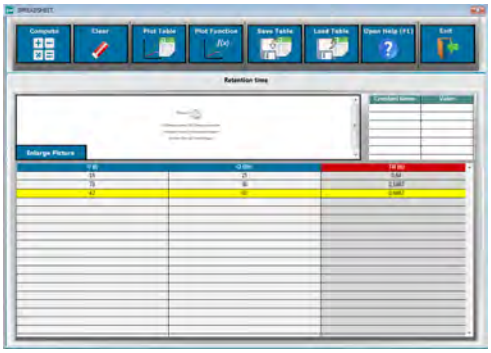
EPE. EDIBON Practical Exercise Program Package Main Screen

For more information see **ICAI** catalogue. Click on the following link:

www.edibon.com/en/files/expansion/ICAI/catalog



ERS. EDIBON Results & Statistics Program Package - Question Explanation



ECAL. EDIBON Calculations Program Package Main Screen

✱ Specifications subject to change without previous notice, due to the convenience of improvement of the product.

INTERNATIONAL

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REPRESENTATIVE: